

Notice of Allowability

Application No.

10/717,335

Examiner

Sam Dillon

Applicant(s)

BITA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/10/07.
2. ☒ The allowed claim(s) is/are 1-9 and 11-17.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. Authorization for this examiner's amendment was given in a voicemail received from Jim Folker on September 20, 2007. The application has been amended as follows:

1. (Currently Amended) A storage control apparatus for accessing a storage device according to a data access request from a requesting apparatus, comprising:

- a first controller which has a first cache memory and is in charge of a first storage device out of a plurality of storage devices; and
- a second controller which has a second cache memory and is in charge of a second storage device out of said plurality of storage devices, wherein

said first controller further comprises a first mirror management table for managing allocation of a storage page in a mirror area of said second cache memory, and said second controller further comprises a second mirror management table for managing allocation of a storage page in a mirror area of said first cache memory,

~~and~~ wherein when said first controller receives a data write request containing write data from said requesting apparatus, said first controller allocates a page in a read/write area of said first cache memory, acquires a storage page in the mirror area of said second cache memory by referring to said first mirror management table, writes the write data from said requesting apparatus to the page allocated in the read/write area of said first cache memory, and copies the write data to the acquired page in the mirror area of said second cache memory.

and wherein said first and second controllers mutually notify the sizes of said first and second cache memories, allocate the mirror areas of said first and second cache memories according to the sizes of said first and second cache memories, and create said first and second mirror management tables from said allocation.

2. (Cancelled)

9. (Currently Amended) A storage control method for accessing a storage device according to a data access request containing write data from a requesting apparatus, comprising the steps of:

allocating a page in a read/write area of a first cache memory disposed in one controller of a pair of controllers when said one controller receives a data write request from said requesting apparatus;

acquiring a storage page in a mirror area of a second cache memory referring to a first mirror management table which is disposed in said one controller for managing allocation of a storage page in the mirror area of said second cache memory of said other controller;

writing the write data from said requesting apparatus to the page allocated in the read/write area of said first cache memory; and

copying the write data to the acquired page in the mirror area of said second cache memory after said writing,

mutually notifying the sizes of said first and second cache memories between both controllers;

allocating the mirror areas of said first and second cache memories according to the sizes of said first and second cache memories; and
creating said first and second mirror management tables from said allocation.

10. (Cancelled)

17. (Currently Amended) A storage control apparatus for accessing a storage device according to a data access request from a requesting apparatus, comprising:

a first controller which has a first cache memory and is in charge of a first storage device out of a plurality of storage devices; and

a second controller which has a second cache memory and is in charge of a second storage device out of said plurality of storage devices, wherein

said first controller further comprises a first mirror management table for managing allocation of a storage page in a mirror area of said second cache memory, and said second controller further comprises a second mirror management table for managing allocation of a storage page in a mirror area of said first cache memory,

wherein when said first controller receives a data write request containing write data from said requesting apparatus, said first controller allocates a page in a read/write area of said first cache memory, acquires a storage page in the mirror area of said second cache memory by referring to said first mirror management table, writes the write data from said requesting apparatus to the page allocated in the read/write area of said first cache memory, and copies the write data to the acquired page in the mirror area of said second cache memory, ~~and~~

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wherein one of said first and second controller manages a paging allocation of a mirror area in the other of said first and second controller, and

wherein said first and second controllers mutually notify the sizes of said first and second cache memories, allocate the mirror areas of said first and second cache memories according to the sizes of said first and second cache memories, and create said first and second mirror management tables from said allocation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Dillon whose telephone number is 571- 272-8010. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on 571-272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



SAD



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